

October 9, 2003

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## **BY HAND-DELIVERY**

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

RECEIVED

OCT - 9 2003

Thomas Tycz, Chief Satellite Division, International Bureau Federal Communications Commission 445 12<sup>th</sup> Street, S.W. Washington, D.C. 20554

Re:

DIRECTV, Inc.; Request for Special Temporary Authority to Relocate DIRECTV 3 to 82° W.L. and to Conduct Telemetry, Tracking and Command ("TT&C") Operations for an Interim Period; File No. SAT-STA-20030903-00300 P; Status of DIRECTV and Amendment of Request

Dear Mr. Tycz:

This letter is written on behalf of DIRECTV, Inc. ("DIRECTV")<sup>1</sup> to (i) summarize the procedural background regarding the status of the DIRECTV 3 direct broadcast satellite, (ii) apprise the Commission formally that the satellite was moved without Commission authorization, (iii) apprise the Commission of the remedial actions that have been taken as a result of the unauthorized relocation, (iv) amend DIRECTV's current pending STA request to reflect these new facts, and (v) reiterate DIRECTV's request for a prompt grant of the STA. DIRECTV recognizes its obligations as a Commission licensee and sincerely regrets the errors that led to the unauthorized movement of the DIRECTV 3 satellite.

### I. PROCEDURAL BACKGROUND

Last year, on September 27, 2002, the Commission granted special temporary authority ("STA") to relocate the DIRECTV 3 satellite to a super-synchronous storage orbit 308 kilometers above the geostationary orbit, where the satellite would serve as emergency backup capacity for the DIRECTV system constellation of six satellites located at the 101° W.L., 110°

DIRECTV is a wholly-owned subsidiary of DIRECTV Enterprises, LLC, which is a Commission licensee in the high-power Direct Broadcast Satellite ("DBS") service, and a wholly-owned subsidiary of Hughes Electronics Corporation.

W.L. and 119° W.L. orbital positions. In its request for that STA, DIRECTV apprised the Commission that once positioned, the DIRECTV 3 satellite communications payload would be turned off, and that the satellite would cease radiating, such that it would not pose an interference risk to other satellites while in storage orbit and would not need to be coordinated. DIRECTV also apprised the Commission that only satellite housekeeping hardware and TT&C functions would remain on, so that the satellite could continue to be controlled and possibly re-engaged in an emergency scenario. <sup>3</sup>

Approximately one year later, on September 3, 2003, DIRECTV requested an STA to relocate the DIRECTV 3 satellite from its storage orbit to a Canadian-assigned Broadcast Satellite Service ("BSS") orbital position at 82° W.L. and to direct the TT&C functions of the satellite for an interim period once the satellite was relocated.<sup>4</sup> The relocation was to effect an agreement between DIRECTV and Telesat Canada ("Telesat") whereby DIRECTV agreed to lease all of the capacity on the DIRECTV 3 satellite to Telesat in order to address Telesat's imminent need for capacity due to a power system anomaly on Telesat's Nimiq 2 satellite.<sup>5</sup> DIRECTV stated that (i) during the relocation of DIRECTV 3, it would not operate the communications payload on the satellite, (ii) Telesat would assume TT&C responsibility for DIRECTV 3 upon its relocation to 82° W.L. once necessary ground equipment is operational at Telesat's facilities, (iii) Telesat would operate the satellite at 82° W.L. under authorization from Industry Canada, (iv) Telesat's assumption of actual TT&C would occur within the first year of the lease, but during the interim, DIRECTV would continue to provide TT&C via a DIRECTVlicensed earth station, and (v) once DIRECTV 3 is relocated, the satellite will be used exclusively for service by Telesat or Telesat's customers to facilitate service to Canadian BSS subscribers, and will not be used to provide U.S. DBS service from a Canadian BSS orbital position. 6 DIRECTV requested that the Commission act promptly upon the STA request, given that the "window" for communicating with the DIRECTV 3 satellite in super-synchronous orbit was expected to close on or about September 25, 2003.<sup>7</sup>

During the month of September, DIRECTV worked with Commission staff informally to answer follow up questions and provide additional documentation concerning the STA request.

DIRECTV, Inc.; Request for Special Temporary Authority to Move the DIRECTV 3
Direct Broadcast Satellite to a Storage Orbit (Sept. 9, 2002), at 2.

 $<sup>^3</sup>$  Id.

DIRECTV, Inc.; Request for Special Temporary Authority to Relocate DIRECTV 3 to 82° W.L. and to Conduct Telemetry, Tracking and Command ("TT&C") Operations for an Interim Period (Sept. 3, 2003).

<sup>&</sup>lt;sup>5</sup> *Id.* at 1-2.

<sup>&</sup>lt;sup>6</sup> *Id.* at 2.

 $<sup>^{7}</sup>$  Id.

#### II. UNAUTHORIZED MOVEMENT OF DIRECTV 3

On September 4, 2003 (the day after DIRECTV applied for the STA to relocate DIRECTV 3), without the knowledge or advice of counsel, DIRECTV personnel caused commands to be communicated to the DIRECTV 3 satellite to slow its drift and to maneuver the satellite into a series of slower super-synchronous storage orbits that would eventually have had the satellite on-station and finally positioned at 82° W.L. on or about October 15, 2003. The satellite is currently in the orbit described by the six classical orbital elements listed as follows:

Semi-Major Axis (SMA) 42164.2 km
Eccentricity (ECC) 0.00024
Inclination (I) 0.55577 degrees
M 39.0712 degrees
Omega 85.2232 degrees
Node 98.3764 degrees

DIRECTV acknowledges that this movement of the satellite from its last Commission-authorized storage orbit 308 kilometers above the geostationary orbit was not authorized by the FCC, and indeed, was the very purpose of the pending STA.

DIRECTV has determined that the commands to slow down and begin pulling DIRECTV 3 closer to the geostationary orbit resulted from an initial communication from DIRECTV's Senior Vice President, Communications Systems, to a subordinate that was intended to begin planning the process of relocating the satellite so that it could be set it in motion quickly once FCC approval was granted. Because the communication in retrospect was not precise, commands to slow the drift of the satellite instead were initiates more promptly than expected, prior to the grant of the STA. When DIRECTV's Senior Vice President became aware on or about September 12 that movement of DIRECTV 3 from its previously-authorized supersynchronous orbit had commenced, he erred and mistakenly did not attribute significance to the event since the satellite remained in a storage orbit with the communications payload turned off, and thus did not in his judgment pose a risk to other satellites. When undersigned counsel confirmed during the week of September 29, 2003 that movement of the satellite had commenced, it was ascertained that the satellite in fact had been relocated to an orbit very close to the geostationary arc in the vicinity of the 82° W.L. orbital position. DIRECTV immediately ceased communicating with the DIRECTV 3 satellite, and arranged a meeting with the International Bureau to report the incident. The meeting occurred on Thursday, October 2, 2003.

## III. REMEDIAL MEASURES AND CURRENT STATUS OF DIRECTV 3

DIRECTV understands fully the seriousness of relocating a satellite without prior Commission authorization and sincerely regrets that internal miscommunications that led to the unauthorized movement of the DIRECTV 3 satellite. As a Commission licensee, DIRECTV has

The Declaration of James R. Butterworth, Senior Vice President, DIRECTV, Inc., is attached, which verifies the accuracy of the factual statements set forth herein.

always been keenly aware of its obligations to operate within the parameters of its FCC authorizations, and has had an exemplary track record of doing so before the instant incident. As DIRECTV advised members of the International Bureau last week, as a result of an internal meeting involving DIRECTV's General Counsel on October 1, 2003, the President of DIRECTV has instituted a formal written policy within DIRECTV that will ensure that any future proposed satellite relocations to other orbital positions are vetted and monitored by the DIRECTV General Counsel to ensure that all necessary Commission notifications have been made and authorizations have been granted. In addition, DIRECTV applied for and received an oral grant of an STA on Friday, October 3, 2003, to execute an additional maneuver to stop the westward drift of the DIRECTV 3 satellite intended to mitigate any risk of collision with other operational satellites.

The communications payload on the DIRECTV 3 satellite remains off, and DIRECTV 3 now does not pose any risk of harmful interference to other operational satellites. As DIRECTV apprised the Commission last year, the TT&C functions of the satellite remain on, so that the satellite can continue to be controlled. The satellite remains in a storage orbit<sup>11</sup> in the vicinity of the 82° W.L. location and will not be commanded further unless and until the Commission approves the requested STA.

### IV. AMENDED STA REQUEST

DIRECTV hereby amends its pending STA request to reflect the above-described facts, and the DIRECTV 3 satellite's current position. DIRECTV has provided the Commission under separate cover and pursuant to a confidentiality request the underlying final documentation of its arrangement with Telesat regarding DIRECTV 3. DIRECTV notes further that on September 26, 2003, Telesat received approval from Industry Canada to operate the DIRECTV 3 satellite from 82° W.L., subject to any additional conditions necessary to effectuate understandings between Canada and other administrations such as the United States respecting the use of the satellite. That approval is attached.

Accordingly, DIRECTV again requests a prompt grant of its STA so that DIRECTV 3 can be finally positioned at the 82° W.L. position. DIRECTV hereby amends its STA request to request that it be granted for the maximum allowable period, 180 days. A grant of the STA remains in the public interest, for the reasons stated in DIRECTV's original request of September 3, 2003.

This directive has been memorialized in an internal company memo that is attached.

DIRECTV, Inc.; Request for Special Temporary Authority to Relocate DIRECTV 3 to 82° W.L. and to Conduct Telemetry, Tracking and Command ("TT&C") Operations for an Interim Period (Oct. 3, 2003).

DIRECTV would continue to characterize this orbit as a "storage orbit" to the extent that the term encompasses any orbit outside of a normal stationkeeping box.

DIRECTV originally had requested that the STA be granted for a period of sixty days.

Respectfully submitted,

Gary M. Epstein James H. Barker

LATHAM & WATKINS LLP 555 Eleventh Street, N.W.

**Suite 1000** 

Washington, D.C. 20004

(202) 637-2200

Counsel for DIRECTV, Inc.

cc: Roderick Porter, IB

Karl Kensinger, IB Jennifer Gilsenan, IB Selina Khan, IB

John Martin, IB Rockie Patterson, IB

Roxanne Austin, DIRECTV, Inc. Robert M. Hall, DIRECTV, Inc.

James R. Butterworth, DIRECTV, Inc.

Merrill Spiegel, DIRECTV, Inc.

## **ATTACHMENT 1**

## DECLARATION OF JAMES R. BUTTERWORTH

- I, James R. Butterworth, hereby declare as follows:
- I am Senior Vice President, Communications Systems for DIRECTV, Inc. ("DIRECTV"). In that capacity, I have been responsible for supervising the construction and deployment of DIRECTV's satellite fleet, including managing the operation and relocation (as necessary) of DIRECTV satellites
- I have reviewed the foregoing letter. The facts set forth therein are true and correct to the best of my knowledge, information and belief.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information and belief.

Sknior Vice President, Communications Systems

DIRECTV, Inc.

Dated:

2003

# **ATTACHMENT 2**

## **DIRECTV Corporate Policy**



To: Senior Staff

Technology Operations Employees Legal and Business Affairs Employees From:

Roxanne Austin

Reserve G. Aust

Date: October 1, 2003

Subject: DIRECTV's Satellite Fleet

In order to ensure full compliance with all applicable government regulations and DIRECTV policies, effective immediately, no decision to relocate DIRECTV satellites from their assigned FCC orbital locations, and no maneuvers or commands to effect any such relocation, shall be made without prior consultation with and approval by the DIRECTV General Counsel. Those requesting such approval by the DIRECTV General Counsel shall provide him with all documentation relating to the proposed relocation, including copies of all necessary FCC notifications and authorizations. In the absence of the DIRECTV General Counsel, such requests for approval should be directed to me.

# **ATTACHMENT 3**



Industry Canada 300 Slater Street Ottawa, ON K1A 0C8 Industrie Canada

SEF. 2 6 2003

Mr. Ted H. Ignacy, Vice President, Finance & Treasurer Telesat Canada 1601 Telesat Court Gloucester, Ontario K1B 5P4

Dear Mr. Ignacy:

I refer to your letter of September 12, 2003 requesting approval of Telesat's plan for restoring broadcasting-satellite service (BSS) capacity at the 82°W orbital position.

I am pleased to provide you with the Department's authorization of your plan to use additional satellite facilities for restoring your BSS capacity available from the 82°W orbital position. This approval is granted without prejudice to any decision yet to be taken by the Department on expressions of interest submitted by Telesat Canada pursuant to its July 2003 Call for Expressions of Interest in Broadcasting Satellite Orbital Positions, and is subject to the conditions of licence set out in the attachment to this letter. It should also be noted that additional conditions may be required to give effect to any understandings developed between Industry Canada and any other administration respecting the use of the restoration satellite facilities.

If you have any questions, please contact Richard Hiebert at (613) 998-4333.

Yours sincerely,

Jan Skora

Director General

Radiocommunication and

Broadcasting Regulatory Branch

Attachment: 1

Canadä

## Attachment

## Licence Conditions for the Use of Restoration Satellite Facilities at the 82°W Orbital Position

- 1. Telesat shall ensure the additional satellite facilities are under the direction or control of a Canadian entity as set out in section 3(3)(b) of the Radiocommunication Act.
- 2. That Telesat shall ensure that the collective operations of the satellite facilities at 82°W are, at all times, in compliance with the Canadian entries to the Region 2 Plan of Appendix 30/30A of the ITU Radio Regulations for the 82°W orbital location.
- 3. All other conditions of licence respecting Telesat's use of broadcasting satellite spectrum at the 82°W position shall apply to the operation of this restoration satellite.



## Federal Communications Commission Washington, DC 20554

December 8, 2003

International Bureau

James H. Barker III, Esq.
Counsel to DIRECTV Enterprises, LLC.
Latham & Watkins
555 11<sup>th</sup> Street, NW
Washington, D.C. 20004

Re:

File No. SAT-STA-20030903-00300

Dear Mr. Barker:

On September 3, 2003, you filed with the Commission, on behalf of DIRECTV Enterprises, LLC ("DIRECTV"), an application for special temporary authority to move the DIRECTV 3 satellite into the 82° W.L. geostationary orbital location. That orbital location is allotted to Canada under the International Telecommunication Union's plans for the Broadcast-Satellite Service and associated feeder links in the 12.2-12.7 GHz and 17.3-17.8 GHz bands, respectively. DIRECTV 3 was at that time authorized, pursuant to special temporary authority, to be located in a "storage" orbit approximately 300 kilometers above the geostationary altitude. See File Nos. SAT-STA-20020910-00172; SAT-MOD-20030205-00032. Pursuant to a request from staff, DIRECTV subsequently provided documents evidencing the contractual arrangements between it and Telesat Canada, a Canadian satellite operator.

In order to permit further processing of this request, we are requesting the following additional information:

- 1. DIRECTV indicated in its original request to place DIRECTV 3 in a storage orbit that it was doing so as a precautionary measure to avoid a "hazard" and "possible threat" to other satellites in the geostationary satellite orbit arc. See File No. SAT-STA-20020910-00172. In a subsequent filing, DIRECTV indicated that such concerns may have been overstated. See letter of April 24, 2003, from James Butterworth, Senior Vice President, DIRECTV, to Thomas S. Tycz, Chief, Satellite Division. Please indicate whether, in the instant request for special temporary authority, DIRECTV is relying upon, and agrees with, the methodology and failure data used in the analysis of Satellite Control Processor ("SCP") failures provided by PanAmSat on April 24, 2003, in File No. SAT-STA-20030324-00039.
- 2. In the PanAmSat statistical analysis, is the date of "tin whisker" failure of the secondary SCP of Galaxy IV known? If so, what is the date? If not, how can this SCP be properly included in the analysis? Please confirm that both satellite control processor failures on Galaxy IV attributed to "tin whiskers" in that study were, in fact, due to "tin whiskers." See <a href="http://nepp.nasa.gov/whisker/failures/">http://nepp.nasa.gov/whisker/failures/</a>.
- 3. Has DIRECTV tested the backup SCP on DBS 2? If so, what are the results? If not, does DIRECTV plan to conduct such a test or are there reasons not to do so? Please state any

such reasons? Does DIRECTV have any knowledge of whether other operators have tested their backup SCPs? If so, what has DIRECTV learned about the results of these tests?

- 4. Please indicate whether any other primary or backup SCP failures have been diagnosed as "tin whisker" failures, or otherwise, since PanAmSat submitted their SCP statistical failure analysis.
- 5. Are there two types of "tin whisker" failure-fatal, and non-fatal? If so, please explain these two failure types, and provide a list of failure type and failure date for all known SCP "tin whisker" failures.
- 6 Has DIRECTV conducted its own statistical analysis or developed its own theoretical model for "tin whisker" failures in SCPs, or is DIRECTV aware of any such statistical analysis, other than by PanAmSat, or of any theoretical model developed by another party? If so, please share this information. Has DIRECTV been in contact with Boeing Space Systems and/or other HS601 operators to share information about SCP failures? If so, what has DIRECTV learned?
- 7 Please indicate whether the DIRECTV 3 and Galaxy IIIR satellites are comparable with respect to the status of their satellite control processors. Is there any data to indicate that the remaining satellite control processor on DIRECTV 3 is operating at anything other than nominal performance levels? Are there any other anomalies or failures in spacecraft systems that may suggest a possible single point failure in the ability to successfully complete end-of-life disposal of the spacecraft?
- 8. The documents submitted pursuant to the staff request, and subject to a request for confidentiality, appear to have been redacted in part. In particular, there appear to be portions of the Memorandum of Agreement that were not provided at points A.2, B.2, and C.3, and portions of the Satellite Relocation and Lease Agreement not provided in the "Whereas" clauses, and at points 3.1 and 5.1. Please provide the identified materials, and any other material redacted from these two agreements.
- 9. Please indicate whether, since September 1, 2003, the DIRECTV 3 satellite has transmitted any signals other than telemetry data.
- 10. Please indicate the call sign(s) of the earth station or earth stations transmitting telecommands to the DIRECTV 3 satellite. (Please note that, although your request indicates that DIRECTV is requesting authority to "direct the TT&C functions of that satellite for a period of time once it is relocated," the data submitted on Forms 312 and 159 do not comport with this request insofar as it involves any authorization of an earth station.)
- 11. The request for STA states that "the satellite will be used exclusively for service by Telesat or Telesat's customers to facilitate service to Canadian BSS subscribers, and will not be used to provide U.S. service from a Canadian orbital position." Please indicate the basis for this statement, particularly in light of the provisions concerning consent to provision in the United

States in Paragraph A.2. of the Memorandum of Agreement between Telesat Canada and DIRECTV Enterprises, LLC, dated August 27, 2003.

Furthermore, we would ask that you carefully examine the materials provided to date, including DIRECTV's request for confidentiality, which was itself filed with a request that it be maintained in confidence, to determine whether there is any segregable material which in DIRECTV's view could be made available for public disclosure. Submission of that material in a format, such as redacted versions, suitable for inclusion in the public file, may facilitate consideration of your request.

We will not further consider Application File No. SAT-STA-20030903-00300 until the information requested above is supplied. Please provide the requested information by December 19, 2003. Failure to respond will subject the application to dismissal pursuant to Section 25.152 of the Commission's rules.

Please hand-deliver or email courtesy copies of any filing made in response to this letter to Jay Whaley (Jay. Whaley@fcc.gov) and Chip Fleming (chip.fleming@fcc.gov) of my staff.

Sincerely,

Thomas S. Tycz

Chief, Satellite Division International Bureau

December 18, 2003

Mr. Thomas S. Tycz Chief. Satellite Division International Bureau Federal Communications Commission 445 12th Street, S.W. Washington, DC 20554

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Re:

File No. SAT-STA-20030903-00300

Dear Mr. Tycz:

In connection with the above-referenced request for special temporary authority ("STA"), DIRECTV Enterprises, LLC ("DIRECTV") hereby responds to your letter dated December 8, 2003.

Please note that the information responsive and corresponding to the numbered questions in your letter is supplied in the attached document, accompanied by the Declaration of James R. Butterworth. Because one of the responses contains confidential information, DIRECTV is requesting confidential treatment for this particular response, and will provide a redacted version for the public file. The unredacted version will be sent to Mssrs. Jay Whaley and Chip Fleming of your staff.

DIRECTV appreciates the opportunity to provide this supplemental information and is hopeful that it will facilitate continued processing of the STA.

Respectfully submitted,

James H. Barker

FLATHAM & WATKINS LLP

Counsel for DIRECTV Enterprises, LLC

cc: Chip Fleming, FCC
Jay Whaley, FCC
James Butterworth, DIRECTV
Merrill Spiegel, DIRECTV
David Pattillo, DIRECTV
Gary M. Epstein, Esq.
John P. Janka, Esq.

## Information Responsive to Questions Posed in 08 December, 2003 Letter

- 1. DIRECTV agrees with and relies upon the methodology and failure data presented in the PanAmSat April 24, 2003 filing.
- 2. DIRECTV's understanding is that (i) Galaxy IV suffered a complete "tin whisker" failure of its secondary SCP in June 1997, (ii) Galaxy IV suffered a motor driver failure of its primary SCP in May 1998, which left the primary SCP with limited capability, and (iii) Galaxy IV suffered a complete "tin whisker" failure of its primary SCP in May 2000. DIRECTV notes that it cannot speak definitively for other satellite operators, and recommends that PanAmSat, the operator of Galaxy IV, be contacted directly to confirm this information.
- 3. Yes. DIRECTV regularly tests the backup SCP on DIRECTV 2 (at least once every six months). The SCP is functioning normally. DIRECTV has anecdotal information that other satellite operators have tested their backup SCPs, but DIRECTV has no knowledge of specific tests or test results of other operators.
- 4. There have been no primary or backup SCP failures on DIRECTV satellites since PanAmSat submitted its SCP failure analysis. Both of the SCP failures experienced by DIRECTV satellites have been attributed to tin whiskers.
- 5. All tin whisker failures to date have been fatal. There is no known non-fatal failure mode. The SCP failure dates of DIRECTV satellites are as follows:

DIRECTV 1 July 5, 1998
DIRECTV 3 May 6, 2002

- 6. DIRECTV has not conducted its own statistical analysis of tin whisker failures, nor is it aware of any analysis other than PanAmSat's. DIRECTV has received two briefings from Boeing regarding tin whisker failures. The hypothesis offered by Boeing supports PanAmSat's analysis -- that in-orbit time is the only parameter that shows a strong correlation to failure probability.
- 7. The DIRECTV 3 and Galaxy IIIR SCPs are comparable in that the failure mechanism is the same. However, the relays in the SCPs are from different lots. Every indication is that DIRECTV's remaining SCP is operating normally. The only other failure on DIRECTV 3 is a telemetry transmitter. There is a redundant telemetry transmitter on the satellite that is operating normally.
- 8. DIRECTV has submitted the referenced pages to your staff fully unredacted under separate cover and confidentiality request. Apart from these pages, your staff is in possession of the fully unredacted documentation.
- 9. DIRECTV 3 has transmitted no signals other than telemetry data since September 1, 2003.

- 10. The call sign of the antenna used to TTAC DIRECTV 3 from supersync to 82° W.L. is E930304. On September 25, 2003, TTAC of DIRECTV 3 was moved to a PanAmSatlicensed antenna, Call Sign No. E990323, in order to prepare the E930304 antenna for DIRECTV 6 and DIRECTV 7S operation.
- 11. [REDACTED]

## DECLARATION OF JAMES R. BUTTERWORTH

I, James R. Butterworth, hereby declare as follows:

- 1. I am a Senior Vice President of DIRECTV Enterprises, LLC. I am an engineer by training and am a primary person in charge of managing DIRECTV's satellite fleet. I am familiar with the technical and interference characteristics of DIRECTV's Direct Broadcast Satellite system and its satellite constellation. I have also
- 2. I have reviewed the foregoing filing and the information found therein is true and accurate to the best of my knowledge, information and belief.

1

James R. Butterworth Senior Vice President

DIRECTV Enterprises, LLC

December 17, 2003